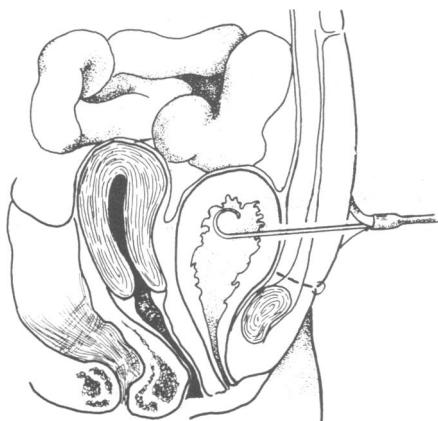


## Procedures in Practice

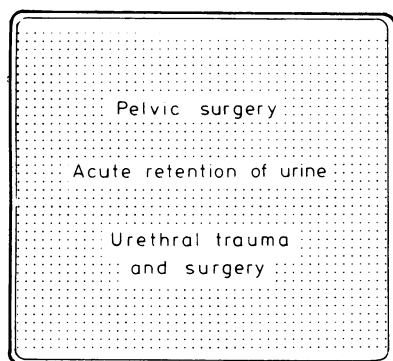
P HILTON  
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# SUPRAPUBIC CATHETERISATION



Suprapubic catheterisation is the technique of draining the bladder by a catheter passed through the anterior abdominal wall. It may be performed as an open or closed procedure, and either method may be carried out in the ward under local anaesthesia or in the theatre under general anaesthesia. Although most of the following comments relate to closed catheterisation in women, using the Bonanno catheter, the same general principles of insertion and subsequent management apply in all cases.

## Indications

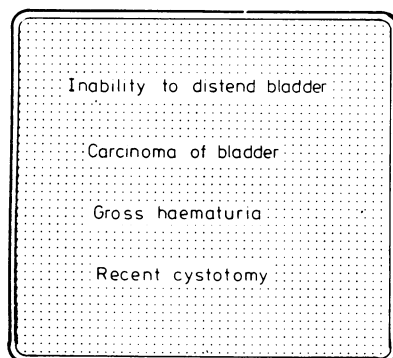


*Management after pelvic surgery*—All gynaecological, urological, and rectal operations may be associated with postoperative urinary retention. The advantage of a suprapubic catheter is that the patient's ability to void can be assessed without removing the catheter. This appreciably reduces patient discomfort, nursing time, and urinary infection, since repeated catheterisations become unnecessary.

*Acute retention of urine*—In men with acute urinary retention the passage of a urethral catheter is often painful and, if the first attempt is unsuccessful, repeated attempts may lead to the formation of a false passage, infection, and stricture. In women these problems are uncommon, but nevertheless retention is often treated by repeated urethral catheterisation when one suprapubic catheterisation would suffice.

*Urethral trauma, urethral or bladder-neck surgery, and repair of vesical or urethral fistula*—In these conditions urethral catheterisation may not only further damage the mucosa but also encourage local oedema and delay healing.

## Contraindications



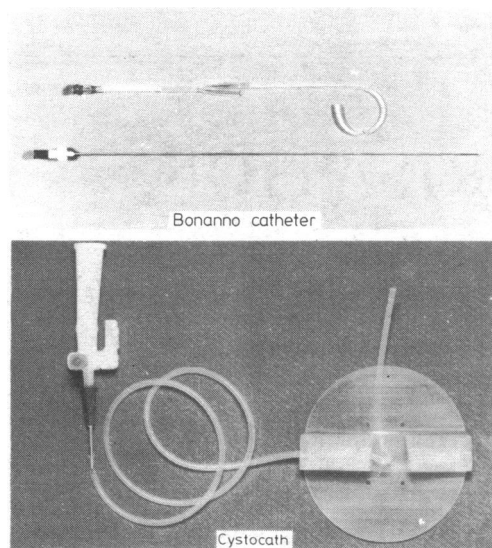
*Inability to distend the bladder*—Ideally the bladder should be distended with 500 ml, though with experience 300 ml may be adequate. At lower volumes the danger of perforating the bowel becomes too great to justify the closed procedure.

*Known or suspected carcinoma of the bladder*—The risk of implanting malignant cells in the fistulous track makes even suspected carcinoma an absolute contraindication.

*Gross haematuria or clot retention*—The catheters used for closed cystostomy are generally of fine calibre and should not be used when there is a risk of occlusion by clot. A larger catheter (22 French gauge) inserted by open cystostomy is more suitable.

*Recent cystotomy*—An open technique at the time of operation is preferable to closed catheterisation, as this may disrupt the vesical suture line.

## Types of catheter



*Bonanno* (6 French gauge)—Two small tabs secured by sutures permit insertion close to a suprapubic transverse incision. The catheter may be left in place for around three weeks and is ideal for postoperative use.

*Cystocath* (8 French gauge)—A large adhesive flange permits secure attachment for long-term drainage. This catheter is less suitable when there is a recent abdominal incision.

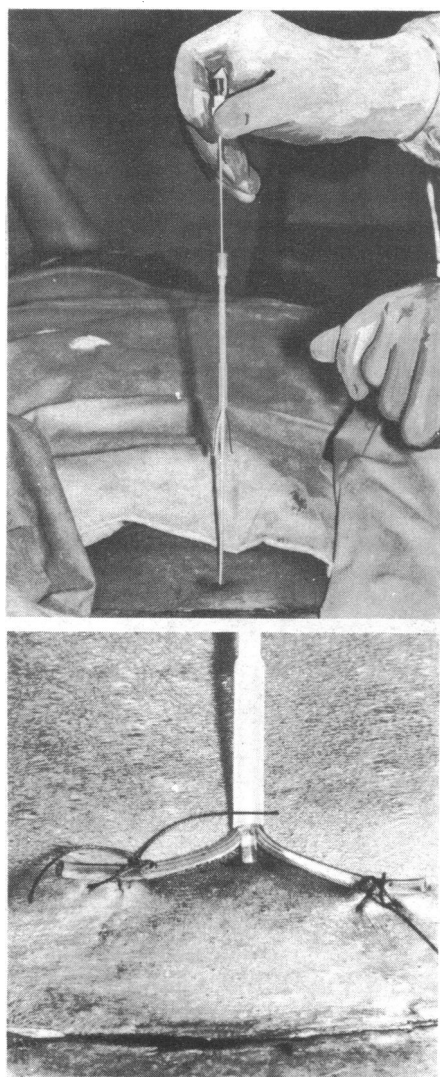
*Argyle Ingram trocar catheter* (12 and 16 French gauge) is more solid in construction than other designs but uncomfortable for a mobile patient. It is secured by an intravesical balloon with a flange sutured to the skin; an irrigation channel is provided.

*Stamey percutaneous catheter* (10 French gauge) is secured by Malecot-type flanges and is not tethered to the skin.

*Foley catheters* may also be inserted suprapubically.

MANUFACTURERS—Bonanno catheter: Becton-Dickinson and Co; Cystocath: Dow-Corning Corporation; Argyle Ingram trocar catheter: Sherwood Medical Inc; Stamey percutaneous catheter: Vance Products Inc.

## Procedure



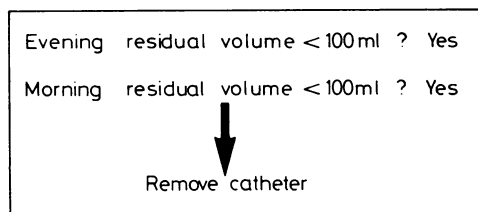
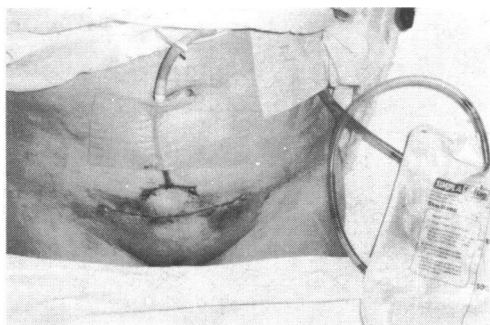
For immediate postoperative bladder drainage the catheter is inserted under general or regional anaesthesia; otherwise local infiltration is perfectly satisfactory.

The following equipment should be assembled beforehand: 1 in 100 aqueous Savlon, for urethral preparation; 1 in 30 alcoholic Savlon, for skin preparation; swabs or cotton-wool balls; a disposable urethral catheter—for example, Nelaton, 12-14 French gauge; intravenous infusion set with 500 ml saline; local anaesthetic—for example, 5-10 ml of 1-2% lignocaine; syringe and needles; No 11 scalpel blade; catheter pack; 00 silk suture; urine drainage bag; and tape—for example, Slek.

Whatever the type of catheter used, the manufacturer's instructions should be studied beforehand by the operator and nursing staff.

When the catheter is to be used postoperatively the bladder must first be filled. Using standard aseptic techniques, a urethral catheter is passed and 400-500 ml sterile saline instilled via the infusion set. The suprapubic area should be prepared, the point of insertion being in the midline 3 cm above the symphysis pubis. In obese patients the catheter is most easily inserted in the suprapubic crease. When local anaesthesia is used the point of insertion should be infiltrated down to the bladder with 1-2% lignocaine. A small stab incision with a No 11 scalpel blade facilitates catheter introduction. The catheter, assembled according to the manufacturer's instructions, is introduced through the incision with a firm thrust in a slightly caudal direction. Resistance should be minimal once the bladder is entered, but correct siting is confirmed by free flow of urine when the stylet or trocar is disengaged.

The catheter may be advanced until its flange is flat against the skin, while at the same time the needle is withdrawn. The catheter is fixed to the skin by a suture, adhesive, tape, or balloon inflation as appropriate. It is connected to a drainage bag, which should also be secured to the skin to prevent dragging. The bladder is drained and the urethral catheter removed.

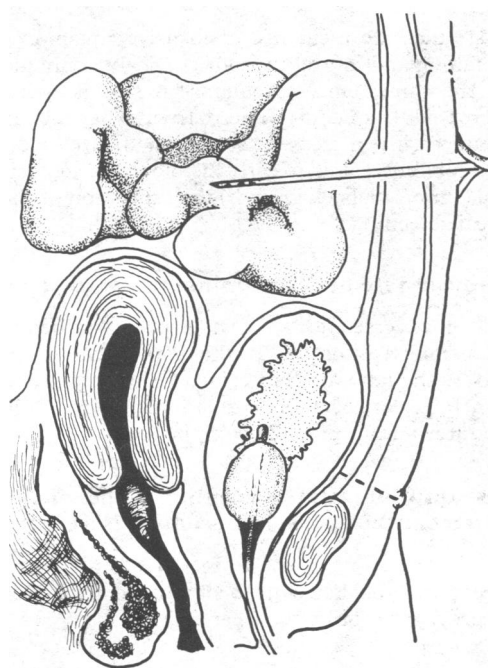


**Subsequent management**—The catheter should be left on continuous drainage until the patient is to attempt voiding (day 2 postoperatively). The adaptor or drainage connection (not the catheter itself) is then clamped and the patient encouraged to void normally. If she is unable to void or becomes distressed the clamp should be released. If she achieves normal voiding the residual volume should be checked after eight hours. The residual volume is obtained by emptying the drainage bag, allowing the patient to void, and then unclamping the catheter for five to 15 minutes, depending on its calibre.

Our usual practice is to leave the catheter on continuous drainage overnight until the evening residual volume is less than 100 ml. The catheter is then clamped overnight, and if the patient has successfully voided during the night and the residual volume is less than 100 ml the catheter is removed.

If prophylactic chemotherapy is not used during catheterisation we recommend that urine samples should be obtained every three days for culture and sensitivity tests.

## Complications



**Failure to enter the bladder** is rarely a problem if the bladder is adequately distended beforehand. If free flow of urine is not observed when the catheter and stylet are disengaged the catheter should be aspirated with a syringe. If urine is not obtained the whole catheter should be removed and resited after further distension of the bladder.

**Bowel injury**—If contents of the small or large bowel are aspirated into the syringe the catheter should be removed and resited. Antibiotic treatment should be started: we recommend a combination of metronidazole and a cephalosporin. Close observation of pulse and blood pressure should be maintained postoperatively.

**Detachment of the catheter from the skin** can usually be managed by resuturing or retaping.

**Leakage around the catheter** appears to be less of a problem with suprapubic than with urethral catheters. It can usually be controlled with antispasmodic treatment, using emepronium bromide, flavoxate hydrochloride, or propantheline bromide.

**Fracture of the catheter or incomplete removal**—Particularly with fine catheters bearing multiple side holes there is a small risk of fracture during removal. A senior nurse should always check the catheter to ensure that it is complete. When doubt exists radiological confirmation and, if necessary, cystoscopic retrieval should be performed.

**Haematuria** may occur on the first day after insertion due to trauma caused by the catheterisation, or later due to cystitis or to irritation of bladder mucosa by the catheter. A catheter specimen of urine should be cultured, but in the absence of infection haematuria will usually settle spontaneously.

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This article concludes the present series on Procedures in Practice. All articles in the series will be collected together and reprinted as a book.